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What to Do if an Emergency/Disaster Strikes

Disaster Scenarios

Pandemic Flu

Biological Threats

Nuclear Blast

Recession, Depression and / or Economic Collapse

Fire

Wildfire

Hazardous Materials (Hazmat) Incidents

Extreme Heat

Flood

Extreme Cold

Tornadoes

Hurricanes

Thunderstorms

Earthquakes

Explosions

Nuclear Power Plant Emergency

Chemical Terrorist Threats

Radiological Dispersion Device (RDD)

Pandemic Flu

As you and your family plan for an influenza pandemic, think about the challenges you might face, particularly if a pandemic is severe.

You can start to prepare now to respond to these challenges. Checklists and other tools have been prepared to guide your planning efforts.

Checklist of things to obtain and do:

- Store a two weeks supply of water and food as well as emergency supplies. During a pandemic, if you cannot get to a store, or if stores are out of supplies, it will be important for you to have extra supplies on hand. This can be useful in other types of emergencies, such as power outages and disasters.
- Periodically check your regular prescription drugs to ensure a continuous supply in your home.
- Have any nonprescription drugs and other health supplies on hand, including pain relievers, stomach remedies, cough and cold medicines, fluids with electrolytes, and vitamins.
- Talk with family members and loved ones about how they would be cared for if they got sick, or what will be needed to care for them in your home.
- Volunteer with local groups to prepare and assist with emergency response.
- Get involved in your community as it works to prepare for an influenza pandemic.

To limit the spread of germs and prevent infection:

- Teach your children to wash hands frequently with soap and water, and model the correct behavior.
- Teach your children to cover coughs and sneezes with tissues, and be sure to model that behavior.
- Teach your children to stay away from others as much as possible if they are sick. Stay home from work and school if sick.

Stay Informed

- Knowing the facts is the best preparation. Identify sources you can count on for reliable information. If a pandemic occurs, having accurate and reliable information will be critical.
- Reliable, accurate, and timely information is available at www.pandemicflu.gov.
- Another source for information on pandemic influenza is the Centers for Disease Control and Prevention (CDC) Hotline at: 1-800-CDC-INFO (1-800-232-4636). This line is available in English and Spanish, 24 hours a day, 7 days a week.
- Look for information on your local and state government Web sites. Links are available to each state department of public health at www.pandemicflu.gov.
- Listen to local and national radio, watch news reports on television, and read your newspaper and other sources of printed and web-based information.
- Talk to your local health care providers and public health officials.

Biological Threats

Biological agents are organisms or toxins that can kill or incapacitate people, livestock, and crops. The three basic groups of biological agents that would likely be used as weapons are bacteria, viruses, and toxins. Most biological agents are difficult to grow and maintain. Many break down quickly when exposed to sunlight and other environmental factors, while others, such as anthrax spores, are very long lived. Biological agents can be dispersed by spraying them into the air, by infecting animals that carry the disease to humans, and by contaminating food and water.

Delivery methods include:

- **Aerosols—**biological agents are dispersed into the air, forming a fine mist that may drift for miles. Inhaling the agent may cause disease in people or animals.
- **Animals—**some diseases are spread by insects and animals, such as fleas, mice, flies, mosquitoes, and livestock.
- **Food and water contamination—**some pathogenic organisms and toxins may persist in food and water supplies. Most microbes can be killed, and toxins deactivated, by cooking food and boiling water. Most microbes are killed by boiling water for one minute, but some require longer. Follow official instructions.
- **Person-to-person—**spread of a few infectious agents is also possible. Humans have been the source of infection for smallpox, plague, and the Lassa viruses.

Specific information on biological agents is available at the Centers for Disease Control and Prevention's Web site, www.bt.cdc.gov.

Nuclear Blast

A nuclear blast is an explosion with intense light and heat, a damaging pressure wave, and widespread radioactive material that can contaminate the air, water, and ground surfaces for miles around. A nuclear device can range from a weapon carried by an intercontinental missile launched by a hostile nation or terrorist organization, to a small

portable nuclear devise transported by an individual. All nuclear devices cause deadly effects when exploded, including blinding light, intense heat (thermal radiation), initial nuclear radiation, blast, fires started by the heat pulse, and secondary fires caused by the destruction.

Recession, Depression and / or Economic Collapse

The increasing economic shakiness necessitates preparing for possible worse case scenarios, notably that the global economy could enter a prolonged period of recession or depression. An economic depression brings a significant increase in layoffs and unemployment, dwindling retail sales, falling stock values, depressed real estate prices, and a shrinking tax base. In fact, Brazil and many countries of the Third World are already experiencing many of these conditions.

A catastrophic event or combination of events, such as pandemic flu, biological or nuclear attacks, large-scale hurricanes, and / or earthquakes could precipitate an economic recession, depression or even economic collapse.

A recession is defined as a decline in a country's real Gross Domestic Product (GDP) for two or more successive quarters of a year. Recessions may be associated with falling prices (deflation), or, alternatively, sharply rising prices (inflation) in a process known as stagflation. A severe or long recession is referred to as an economic depression.

An economic collapse is a devastating breakdown of a national, regional, or territorial economy. A full or near-full economic collapse is often quickly followed by months, years, or even decades of economic depression, social chaos, and civil unrest. During the 1980s, the Eastern Bloc experienced a decade-long period of stagnation, stagflation, and eventual collapse from which it never would recover, culminating with revolutions and the fall of communist regimes throughout Central and Eastern Europe and eventually in the Soviet Union.

Fire

According to the Red Cross, the third leading cause of accidental death in recent years has been fire. Most of these fires have occurred in the home, which is a particularly dangerous environment. Fire is always a possible danger, and a probable secondary disaster in the event of a major earthquake or flood. It is always important that you follow safety measures for fire prevention, detection, and escape. It is doubly important after an earthquake because regular fire fighters may not be able to get to you in time. Floods and other natural disasters will also spawn a large number of fires because of electrical shorts and severed gas lines.

Most fires can be extinguished quickly, using tools that are available. Remember the three basic ways to put out a fire:

- Take away its fuel.
- Take away its air (smother it).
- Take away its heat by cooling it with water.

Wildfire

Though forest and brush fires can start without warning, federal and state governments maintain a system of watch towers or surveillance aircraft manned by the U.S. Forest Service and state forest services to ensure that the location of fires can be determined, warnings issued, and necessary emergency actions taken in prompt fashion.

Hazardous Materials (Hazmat) Incidents

Chemicals are found everywhere. They purify drinking water, increase crop production, and simplify household chores. But chemicals also can be hazardous to humans or the environment if used or released improperly. Hazards can occur during production, storage,

transportation, use, or disposal. You and your community are at risk if a chemical is used unsafely or released in harmful amounts into the environment where you live, work, or play. Chemical manufacturers are one source of hazardous materials, but there are many others, including service stations, hospitals, and hazardous materials waste sites.

Extreme Heat

Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.

Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, which can produce higher nighttime temperatures known as the "urban heat island effect."

Know the Terms. Familiarize yourself with these terms to help identify an extreme heat hazard:

Heat Wave - Prolonged period of excessive heat, often combined with excessive humidity.

Heat Index - A number in degrees Fahrenheit (F) that tells how hot it feels when relative humidity is added to the air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.

Heat Cramps - Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with the heat.

Heat Exhaustion - Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs. This results in a form of mild shock. If not treated, the victim's condition will worsen. Body temperature will keep rising and the victim may suffer heat stroke.

Heat Stroke - A life-threatening condition. The victim's temperature control system, which produces sweating to cool the body, stops working. The body temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Sun Stroke - Another term for heat stroke.

Flood

During or after a hurricane, flooding is likely. Flooding is the nation's most common natural disaster. Be prepared for flooding no matter where you live, but particularly if you are in a low-lying area, near water or downstream from a dam. Even a very small stream or dry creek bed can overflow and create flooding. The principal cause for flooding is intense rainfall.

Extreme Cold

Heavy snowfall and extreme cold can immobilize an entire region. Even areas that normally experience mild winters can be hit with a major snowstorm or extreme cold. Winter storms can result in flooding, storm surge, closed highways, blocked roads, downed power lines and hypothermia.

Know the Terms. Familiarize yourself with these terms to help identify a winter storm hazard:

Freezing Rain - Rain that freezes when it hits the ground, creating a coating of ice on roads, walkways, trees, and power lines. Sleet - Rain that turns to ice pellets before reaching the ground. Sleet also causes moisture on roads to freeze and become slippery.

Winter Storm Watch - A winter storm is possible in your area. Tune in to NOAA Weather Radio, commercial radio, or television for more information.

Winter Storm Warning - A winter storm is occurring or will soon occur in your area.

Blizzard Warning - Sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow (reducing visibility to less than a quarter mile) are expected to prevail for a period of three hours or longer.

Frost/Freeze Warning - Below freezing temperatures are expected.

Tornadoes

Tornadoes are nature's most violent storms. Spawned from powerful thunderstorms, tornadoes can cause fatalities and devastate a neighborhood in seconds. A tornado appears as a rotating, funnel-shaped cloud that extends from a thunderstorm to the ground with whirling winds that can reach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long. Every state is at some risk from this hazard.

Hurricanes

Hurricanes can produce widespread torrential rains. Floods are the deadly and destructive result. Slow moving storms and tropical storms moving

into mountainous regions tend to produce especially heavy rain. Excessive rain can trigger landslides or mud slides, especially in mountainous regions. Flash flooding can occur due to intense rainfall. Flooding on rivers and streams may persist for several days or more after the storm. Since 1970, more people lost their lives from freshwater inland flooding associated with land falling tropical cyclones than from any other weather hazard related to tropical cyclones.

Know the Terms. Familiarize yourself with these terms to help identify a hurricane hazard:

Tropical Depression - An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds of 38 MPH (33 knots) or less. Sustained winds are defined as one-minute average wind measured at about 33 ft (10 meters) above the surface.

Tropical Storm - An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 MPH (34-63 knots).

Hurricane - An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 MPH (64 knots) or higher.

Storm Surge - A dome of water pushed onshore by hurricane and tropical storm winds. Storm surges can reach 25 feet high and be 50-100 miles wide.

Storm Tide - A combination of storm surge and the normal tide (i.e., a 15-foot storm surge combined with a 2-foot normal high tide over the mean sea level creates a 17-foot storm tide).

Hurricane/Tropical Storm Watch - Hurricane/tropical storm conditions are possible in the specified area, usually within 36 hours. Tune in to NOAA Weather Radio, commercial radio, or television for information.

Hurricane/Tropical Storm Warning - Hurricane/tropical storm conditions are expected in the specified area, usually within 24 hours.

Short Term Watches and Warnings - These warnings provide detailed information about specific hurricane threats, such as flash floods and tornadoes.

Thunderstorms

All thunderstorms are dangerous. Every thunderstorm produces lightning. In the United States, an average of 300 people are injured and 80 people are killed each year by lightning. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms. Other associated dangers of thunderstorms include tornadoes, strong winds, hail, and flash flooding. Flash flooding is responsible for more fatalities—more than 140 annually—than any other thunderstorm-associated hazard.

Dry thunderstorms that do not produce rain that reaches the ground are most prevalent in the western United States. Falling raindrops evaporate, but lightning can still reach the ground and can start wildfires.

The following are facts about thunderstorms:

- They may occur singly, in clusters, or in lines.
- Some of the most severe occur when a single thunderstorm affects one location for an extended time.
- Thunderstorms typically produce heavy rain for a brief period, anywhere from 30 minutes to an hour.
- Warm, humid conditions are highly favorable for thunderstorm development.
- About 10 percent of thunderstorms are classified as severe—one that produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado.

The following are facts about lightning:

- Lightning's unpredictability increases the risk to individuals and property.
- Lightning often strikes outside of heavy rain and may occur as far as 10 miles away from any rainfall.
- "Heat lightning" is actually lightning from a thunderstorm too far away for thunder to be heard. However, the storm may be moving in your direction!
- Most lightning deaths and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Your chances of being struck by lightning are estimated to be 1 in 600,000, but could be reduced even further by following safety precautions.
- Lightning strike victims carry no electrical charge and should be attended to immediately.

Know the Terms. Familiarize yourself with these terms to help identify a thunderstorm hazard:

Severe Thunderstorm Watch - Tells you when and where severe thunderstorms are likely to occur. Watch the sky and stay tuned to NOAA Weather Radio, commercial radio, or television for information.

Severe Thunderstorm Warning - Issued when severe weather has been reported by spotters

or indicated by radar. Warnings indicate imminent danger to life and property to those in the path of the storm.

Earthquakes

The actual movement of the earth in an earthquake is seldom a direct cause of death or injury. However, this movement causes collapse of buildings and other structures. Most casualties result from falling objects and debris, such as falling bricks and plaster, splintering glass, toppling furniture, collapsing walls, falling pictures and mirrors, rock slides on mountains and hillsides, fallen power lines, fire resulting from broken gas lines and spillage of flammables--a danger which may be aggravated by lack of water due to broken water mains, and drastic human actions resulting from panic.

Magnitude (M) is a measure of an earthquake's size. Most earthquakes M <3.9 or below would not cause any significant damage and may only be felt by a few people in the area of occurrence. An M 6.0 earthquake is typically the threshold for causing serious damage. Earthquakes magnitude (M) classifications are:

Great (Catastrophic) = M > 8.0+

M**ajor =** M 7.0 to 7.9

Large = M 6.0 to 6.9

Moderate = M 5.0 to 5.9

Minor = M 4.0 to 4.9

General Felt = M 3.0 to 3.9

Potentially perceptible = M 2.0 to 2.9

Imperceptible = M < 2.0

Most earthquakes occur along faults or breaks between the massive continental oceanic/ tectonic plates that collide, slide or separate, creating earthquakes. South Carolina, however, is located in the middle of the North American tectonic plate. Consequently, earthquakes occur less frequently, but more violently over a much greater area due to sub-surface geological conditions.

The two significant earthquakes in SC were the 1886 Charleston earthquake (estimated at M 7.3) and the 1913 Union County earthquake (estimated at M 4.5). The 1886 Charleston earthquake was the most damaging earthquake to occur in the Eastern United States.

Know the Terms. Familiarize yourself with these terms to help identify an earthquake hazard:

Earthquake - A sudden slipping or movement of a portion of the earth's crust, accompanied and followed by a series of vibrations.

Aftershock - An earthquake of similar or lesser intensity that follows the main earthquake.

Fault - The fracture across which displacement has occurred during an earthquake. The slippage may range from less than an inch to more than 10 yards in a severe earthquake.

Epicenter - The place on the earth's surface directly above the point on the fault where the earthquake rupture began. Once fault slippage begins, it expands along the fault during the earthquake and can extend hundreds of miles before stopping.

Seismic Waves - Vibrations that travel outward from the earthquake fault at speeds of several miles per second. Although fault slippage directly under a structure can cause considerable damage, the vibrations of seismic waves cause most of the destruction during earthquakes.

Magnitude - The amount of energy released during an earthquake, which is computed from the amplitude of the seismic waves. A magnitude of 7.0 on the Richter Scale indicates an extremely strong earthquake. Each whole number on the scale represents an increase of about 30 times more energy released than the previous whole number represents. Therefore, an earthquake measuring 6.0 is about 30 times more powerful than one measuring 5.0.

Explosions

Terrorists have frequently used explosive devices as one of their most common weapons. Terrorists do not have to look far to find out how to make explosive devices; the information is readily available in books and other information sources. The materials needed for an explosive device can be found in many places including variety, hardware, and auto supply stores. Explosive devices are highly portable using vehicles and humans as a means of transport. They are easily detonated from remote locations or by suicide bombers. Conventional bombs have been used to damage and destroy financial, political, social, and religious institutions. Attacks have occurred in public places and on city streets with thousands of people around the world injured and killed.

Parcels that should make you suspicious:

- Are unexpected or from someone unfamiliar to you.
- Have no return address, or have one that can't be verified as legitimate.
- Are marked with restrictive endorsements such as "Personal," "Confidential," or "Do not X-ray."
- Have protruding wires or aluminum foil, strange odors, or stains.
- Show a city or state in the postmark that doesn't match

the return address.

- Are of unusual weight given their size, or are lopsided or oddly shaped.
- Are marked with threatening language.
- Have inappropriate or unusual labeling.
- Have excessive postage or packaging material, such as masking tape and string.
- Have misspellings of common words.
- Are addressed to someone no longer with your organization or are otherwise outdated.
- Have incorrect titles or titles without a name.
- Are not addressed to a specific person.
- Have hand-written or poorly typed addressees.

Nuclear Power Plant Emergency

Nuclear power plants use the heat generated from nuclear fission in a contained environment to convert water to steam, which powers generators to produce electricity. Nuclear power plants operate in most states in the country and produce about 20 percent of the nation's power. Nearly 3 million Americans live within 10 miles of an operating nuclear power plant. Although the construction and operation of these facilities are closely monitored and regulated by the Nuclear Regulatory Commission (NRC), accidents are possible. An accident could result in dangerous levels of radiation that could affect the health and safety of the public living near the nuclear power plant.

Local and state governments, federal agencies, and the electric utilities have emergency response plans in the event of a nuclear power plant incident. The plans define two "emergency planning zones." One zone covers an area within a 10 mile radius of the plant, where it is possible that people could be harmed by direct radiation exposure. The second zone covers a broader area, usually up to a 50-mile radius from the plant, where radioactive materials could contaminate water supplies, food crops, and livestock.

The potential danger from an accident at a nuclear power plant is exposure to radiation. This exposure could come from the release of radioactive material from the plant into the environment, usually characterized by a plume (cloud-like formation) of radioactive gases and particles. The major hazards to people in the vicinity of the plume are radiation exposure to the body from the cloud and particles deposited on the ground, inhalation of radioactive materials, and ingestion of radioactive materials.

Radioactive materials are composed of atoms that are unstable. An unstable atom gives off its excess energy until it becomes stable. The energy emitted is radiation. Each of us is exposed to radiation daily from natural sources, including the Sun and the Earth. Small traces of radiation are present in food and water. Radiation also is released from man-made sources such as X-ray machines, television sets, and microwave ovens. Radiation has a cumulative effect. The longer a person is exposed to radiation, the greater the effect. A high exposure to radiation can cause serious illness or death.

Minimizing Exposure to Radiation

- **Distance -**The more distance between you and the source of the radiation, the better. This could be evacuation or remaining indoors to minimize exposure.
- **Shielding -**The more heavy, dense material between you and the source of the radiation, the better.
- **Time -** Most radioactivity loses its strength fairly quickly.

If an accident at a nuclear power plant were to release radiation in your area, local authorities would activate warning sirens or another approved alert method. They also would instruct you through the Emergency Alert System (EAS) on local television and radio stations on how to protect yourself.

Know the Terms. Familiarize yourself with these terms to help identify a nuclear power plant emergency:

Notification of Unusual Event - A small problem has occurred at the plant. No radiation leak is expected. No action on your part will be necessary.

Alert - A small problem has occurred, and small amounts of radiation could leak inside the plant. This will not affect you and no action is required.

Site Area Emergency - Area sirens may be sounded. Listen to your radio or television for safety information.

General Emergency - Radiation could leak outside the plant and off the plant site. The sirens will sound. Tune to your local radio or television station for reports. Be prepared to follow instructions promptly. Take Protective Measures

Chemical Terrorist Threats

Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants. They can be released by bombs or sprayed from aircraft, boats, and vehicles. They can be used as a liquid to create a hazard to people

and the environment. Some chemical agents may be odorless and tasteless. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (2 to 48 hours). While potentially lethal, chemical agents are difficult to deliver in lethal concentrations. Outdoors, the agents often dissipate rapidly. Chemical agents also are difficult to produce.

A chemical attack could come without warning. Signs of a chemical release include people having difficulty breathing; experiencing eye irritation; losing coordination; becoming nauseated; or having a burning sensation in the nose, throat, and lungs. Also, the presence of many dead insects or birds may indicate a chemical agent release.

Radiological Dispersion Device (RDD)

Terrorist use of an RDD—often called “dirty nuke” or “dirty bomb”—is considered far more likely than use of a nuclear explosive device. An RDD combines a conventional explosive device—such as a bomb—with radioactive material. It is designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Such RDDs appeal to terrorists because they require limited technical knowledge to build and deploy compared to a nuclear device. Also, the radioactive materials in RDDs are widely used in medicine, agriculture, industry, and research, and are easier to obtain than weapons grade uranium or plutonium.

The primary purpose of terrorist use of an RDD is to cause psychological fear and economic disruption. Some devices could cause fatalities from exposure to radioactive materials. Depending on the speed at which the area of the RDD detonation was evacuated or how successful people were at sheltering in place, the number of deaths and injuries from an RDD might not be substantially greater than from a conventional bomb explosion.

The size of the affected area and the level of destruction caused by an RDD would depend on the sophistication and size of the conventional bomb, the type of radioactive material used, the quality and quantity of the radioactive material, and the local meteorological conditions—primarily wind and precipitation. The area affected could be placed off-limits to the public for several months during cleanup efforts.